October 10, 2006

Mr. Richard Krolak
Chief, CalPERS Office of Long Term Care
400 P Street, 5th floor
Sacramento, CA 95814

Subject: Actuarial Valuation of the CalPERS Long Term Care Program
as of June 30, 2006

Dear Mr. Krolak:

I have attached a report summarizing the results of our actuarial valuation of the CalPERS Long Term Care Program as of June 30, 2006. Please note that this report is not meant to serve as complete actuarial documentation. Much additional relevant data/information is available for distribution and can be provided upon request.

This report is organized as follows:

- The first section presents an executive summary of the valuation results and recommendations.
- The following sections present:
  - Scope and background information.
  - The approach used for this valuation.
  - A discussion of revised assumptions.
  - Information regarding model construction and fit.
  - Projection results – base case and sensitivity testing.
  - A reconciliation of base case valuation results.
  - Additional perspectives on projection results.
  - Recommendations.
  - Caveats and/or limitations applicable to this valuation.

Additional details are provided in various attachments as described in the report.

Acknowledgments
I would like to acknowledge the efforts of my staff members, who assisted me with nearly every aspect of this project:

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Conclusion

Please feel free to contact me directly to discuss anything presented in this report at (317)575-7672 or via e-mail at kvolkmar@uhasinc.com.

Sincerely,

Karl G. Volkmar, FSA, MAAA, FCA
Principal & Consulting Actuary

Actuarial Valuation of the

California Public Employees Retirement System

Long Term Care Program

As of 6/30/06

Prepared by:

Karl G. Volkmar, FSA, MAAA, FCA
Principal & Consulting Actuary
United Health Actuarial Services, Inc.

October 10, 2006

Executive Summary

United Health Actuarial Services, Inc. (UHAS) was retained by the California Public Employee Retirement System (CalPERS) Long Term Care (LTC) Program to perform an actuarial valuation of CalPERS' LTC operations as of June 30, 2006, along with any supporting analyses. Specifically, our assignment was to develop a projection of future cash flows and to evaluate the adequacy of current assets and premium levels based on those cash flows.

We utilized our work on the 2005 annual valuation and subsequent analyses as the starting point for the development of the 2006 valuation.

Briefly, the 2006 valuation process could be summarized as follows:

- We reviewed assumptions from the 2005 valuation and subsequent analyses.
- We updated the detailed morbidity study developed for the 2005 valuation using actual program experience through 6/30/06.
- We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with Long Term Care Group's (LTCG's) manual ultimate claim costs.
- We validated resulting claim costs to historical incurred claims experience using our established validation process.
- We developed selection factors as part of the validation process such that the proposed morbidity assumptions approximately reproduced historical incurred claims and then tested those factors against corresponding manual values.
- We input assumptions into our model and ran the model for all scenarios to be tested.

Please note that while we reviewed all valuation assumptions, our primary focus again this year was on assumed morbidity. This will be discussed in more detail later in this report.

Given all of the above, we developed projected values using a seriatim projection model and we used those projected values along with current program financial information to determine the financial standing of the program.

Projection Results

In summary, due to the range of scenario testing presented in this report, projected results varied widely. Projection results are very sensitive to the underlying assumptions used.

The results of the projection scenario A(1), the "base case" scenario to be used for financial reporting purposes, are summarized in the table below.

Projection Scenario A(1) Summary of Projected Values Inforce Business as of 6/30/06 Present Values @ 7.79% ($ in Millions)	
Component	**Present Value**
1. Present Value of Future Benefits	$4,328.9
2. Present Value of Future Expenses	$ 262.7
3. Present Value of Future Premiums (PVFP)	$2,048.5
4. Valuation Liabilities (= 3 – 1 – 2)	($2,543.1)
5. Valuation Assets	$1,789.6
6. Valuation Surplus/(Deficit) (= 5 – 4)	($753.5)
7. Surplus/(Deficit) as a % of PVFP	(36.78%)

Please see the report and Attachments A and B for a detailed discussion of projection results.

Recommendations

Based on all of the data/information presented above and in more detail later in this report, we recommend the following:

- Implement one or more mitigation initiatives effective as soon as possible that, in the aggregate, would reduce and ultimately eliminate the projected future deficit.

  Please note that a separate document will soon be released that will present proposed initiatives for review and consideration.

- Develop a detailed monitoring and reporting system that compares all key emerging experience items against (at least) pricing assumptions and corresponding assumptions from the most recent valuation.

Conclusion

Again, all of this will be discussed in more detail later in this report.

Report

This report summarizes the results of our actuarial valuation of the CalPERS Long Term Care Program as of June 30, 2006. Please note that this report is not meant to serve as complete actuarial documentation for this valuation. Additional data/information can be provided upon request.

Scope and Background Information

United Health Actuarial Services, Inc. (UHAS) was retained by the California Public Employee Retirement System (CalPERS) Long Term Care (LTC) Program to perform an actuarial valuation of CalPERS' LTC operations as of June 30, 2006, along with any supporting analyses. Specifically, our assignment was to develop a projection of future cash flows and to evaluate the adequacy of current assets and premium levels based on those cash flows.

We utilized our work on the 2005 annual valuation and subsequent analyses as the starting point for the development of the 2006 valuation.

Valuation Approach

Briefly, the 2006 valuation process could be summarized as follows:

- We reviewed assumptions from the 2005 valuation and subsequent analyses.
- We updated the detailed morbidity study developed for the 2005 valuation using actual program experience through 6/30/06.
- We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with Long Term Care Group's (LTCG's) manual ultimate claim costs.
- We validated resulting claim costs to historical incurred claims experience using our established validation process.
- We developed selection factors as part of the validation process such that the proposed morbidity assumptions approximately reproduced historical incurred claims and then tested those factors against corresponding manual values.
- We input assumptions into our model and ran the model for all scenarios to be tested.

Each of these steps is reiterated and discussed in more detail below.

- *We reviewed assumptions from the 2005 valuation and subsequent analyses.*

  We reviewed all of the assumptions used in the 2005 valuation. A discussion of revised assumptions is included later in this report.

- *We updated the detailed morbidity study developed for the 2005 valuation using actual program experience through 6/30/06.*

  Since 2004, we have developed morbidity studies using actual program experience. Our studies have included the following:

- Incidence and continuance analyses.
- Ultimate claim cost analyses.
- Selection factor analyses.

We updated all of these studies using data through 6/30/06.

For the benefit designs modeled, we performed detailed claim cost analyses and then adjusted assumed claim costs based on the results of those analyses.

We used the following approach with respect to our ultimate claim cost analyses:

- Using source coverage and claims data files from LTCG and given relevant direction from LTCG actuarial personnel regarding the interpretation and processing of that data, we developed complete inception-to-date exposure and claims databases for the program.

- We added provision for claim reserves (on a seriatim basis) and incurred but not reported (IBNR) claim liabilities (allocated across inforce policies not already on claim based on annualized premium) to the claims database. Please note that we developed internally all of the claim liabilities and reserves used in this analysis.

- We generated incurred claim summaries by attained-age band and duration and then used those to develop "gross-up factors" that were used to adjust incurred claims for earlier durations to estimated ultimate levels. While these gross-up factors were developed from actual experience, industry selection wear-off patterns were also considered when determining the lengths of the selection periods as well as the ultimate selection factors for each issue-age band.

- All incurred claims were grossed up as indicated above.

- We developed a summary of estimated ultimate incurred claim costs by attained-age band and gender for the benefit designs we explicitly modeled.

We used the resulting estimated ultimate claim costs as described in the subsection immediately below.

- *We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with LTCG's manual ultimate claim costs.*

The estimated actual ultimate male and female claim costs referenced above for pivotal ages 47, 57, 62, 67, 72, 77, 82 and 87 were adjusted such that they were on the same basis as LTCG manual ultimate claim costs, and the resulting

adjusted claim costs were credibility-weighted with the corresponding LTCG manual ultimate claim costs to develop the assumed ultimate claim costs.

Please note that we chose to utilize LTCG's manual morbidity assumptions as a basis for assumed valuation morbidity as opposed to our own LTC claims database for the following reasons:

- Their manual better reflected experience for the LTC insurance industry as a whole;
- It required relatively few adjustments before it could be utilized for this purpose; and,
- Relevant values had already been developed for prior valuation work and were readily available.

The credibility standards we applied were taken from the results of an analysis dated 5/28/03 performed by the Credibility Subgroup of the American Academy of Actuaries Long-Term Care Reserving Work Group. For credibility-weighting purposes, we considered "full credibility" to mean that there would be a 90% probability that estimates would fall within 10% of expected claim costs, and we used appropriate program data to translate that standard into minimum claim counts needed within a given cell in order to achieve full credibility. We ascribed partial credibility within a given cell based on the relationship between actual claim counts and "full credibility" claim counts; however, any actual claim volume that resulted in less than a 20% credibility-weighting to actual experience was ignored entirely.

The new assumed ultimate claim costs between the pivotal ages were developed using standard interpolation methods. Corresponding claim costs for attained-ages 37 and younger and 97 and older were set at LTCG's manual ultimate claim costs. Claim costs between 37 and 47 and between 87 and 97 were developed using standard interpolation methods.

- *We validated resulting claim costs to historical incurred claims experience using our established validation process.*

  In order to validate the credibility-weighted claim costs referenced above, we calculated historical benefit-adjusted exposures by attained-age band and duration for all benefit designs modeled, and input our proposed morbidity assumptions to assess how effectively they reproduced historical experience.

- *We developed selection factors as part of the validation process such that the proposed morbidity assumptions approximately reproduced historical incurred claims and then tested those factors against corresponding manual values.*

  As part of the validation process, selection factors were developed using 2005 assumed values as a starting point to optimize the match between actual and

"expected" claims (i.e., those based on proposed morbidity assumptions). We then tested LTCG's manual selection factors (which vary by issue-age, duration and underwriting type), and they produced similar results.

- *We input assumptions into our model and ran the model for all scenarios to be tested.*

  Results of the "base case" scenario to be used for financial reporting purposes along with results from other scenarios are summarized later in this report.

A summary of relevant valuation assumptions is included as Attachment C.

Discussion of Revised Assumptions

This section presents data/information relating to assumption revisions made to the 2006 valuation as compared to the 2005 valuation.

Discussion of 2005 Valuation Results

Please see Attachment D for a summary of actual-to-projected values for the period 7/05-6/06. As you can see, actual experience for that period is very consistent with the corresponding projected values from the 2005 valuation. These results did not indicate that any significant revisions to valuation assumptions/methods/etc. were justified.

Morbidity

Our primary assumption revision(s) from last year's valuation again relate to assumed morbidity. These assumptions were revised as follows:

- Ultimate claim costs were revised as described in the section above. Please note that actual program claim costs have generally increased along with the statistical credibility associated with those claim costs.

- Contributing to the above, we developed claim liabilities and reserves internally as opposed to using those developed by LTCG. As a reminder, we used LTCG's values last year because our aggregate liability/reserve amounts were comparable to theirs and we wanted to facilitate the reconciliation of the 2005 valuation to the 2004 valuation.

  Regarding the impact of this, using our liability and reserve estimates as of 6/30/06 as compared to those developed by LTCG, our estimated inception-to-date incurred claims total is approximately 4.9% greater than their corresponding estimate.

- We performed a detailed comparison of our assumed claim costs to LTCG's manual claim costs to ensure that we were using appropriate manual values, and made needed adjustments as appropriate.

- We revised our treatment of post-claim inflation such that it is accounted for in the model as opposed to being accounted for in the assumed claim costs. This change did not have a significant impact on results.

- Claim payment distributions (i.e., assumed payment patterns associated with the assumed claim costs) were revised to reflect emerging experience and post-claim inflation (when applicable) and were developed to be consistent with current liability/reserve levels.

- Revised selection factors were developed as described in the section above. We ultimately used LTCG's manual selection factors for three reasons:

    - They approximately reproduced historical incurred claim experience;
    - They produced projected values consistent with recent actual historical values; and,
    - They allowed us to differentiate assumed morbidity by underwriting type in a manner consistent with LTCG's manual methodology.

- Adjustments to reflect reduced exposures due to individuals already on claim were revised to be consistent with assumed ultimate claim costs.

In the aggregate, these revisions result in projected future claims consistent with those generated in the 2005 valuation. That being said, please note that if experience continues to emerge in a manner consistent with how experience has emerged to date, valuation results could deteriorate.

Voluntary Lapsation

We performed our own detailed analysis of actual program lapse experience and revised assumed laspation as we deemed appropriate. Actual voluntary lapse rates for the CalPERS LTC program appear to be much lower than those experienced in the LTC insurance industry as a whole.

Please note that while assumed lapsation did not change significantly, projection results are very sensitive to changes in that assumption so the revision did have an impact on projection results. Please see the "Base Case Reconciliation…" section for more details.

Other Assumptions

All other assumptions are substantially similar to those utilized in the 2005 valuation.

Model Construction and Fit

Given everything presented above, we developed projected values using a proprietary seriatim projection model.

We created a projection model such that projected lives inforce, premiums collected and claims incurred were all consistent with recent historical values. With respect to incurred

claims, we modified input assumptions until the model was able to approximately replicate past experience. Assumptions are documented in more detail in Attachment B.

Projection Results – Base Case & Sensitivity Testing

The "base case" projection results are summarized in Attachment A(1).

The following outlines the assumption changes (as compared to the base case scenario) associated with the projection results summarized in Attachments A(2) through A(9):

Attachment A(2) - Investment/discount rate changed to 8.50%.
Attachment A(3) – LTC base policy claims reduced by 10%.
Attachment A(4) - Model expenses reduced by 20%.
Attachment A(5) - Investment/discount rate changed to 8.50%, LTC base policy claims reduced by 10%, and model expenses reduced by 20%.
Attachment A(6) - Investment/discount rate changed to 7.00%.
Attachment A(7) – LTC base policy claims increased by 10%.
Attachment A(8) - Model expenses increased by 20%.
Attachment A(9) - Investment/discount rate changed to 7.00%, LTC base policy claims increased by 10%, and model expenses increased by 20%.

A brief summary of projection results is included below:

Scenario	(Deficit)/ Surplus	LTC Claim Adj.	Model Expense Adj.	Investment Discount Rate
A(1)	(36.78%)	0%	0%	7.79%
A(2)	(17.74%)	0%	0%	8.50%
A(3)	(15.84%)	-10%	0%	7.79%
A(4)	(34.56%)	0%	-20%	7.79%
A(5)	3.91%	-10%	-20%	8.50%
A(6)	(60.44%)	0%	0%	7.00%
A(7)	(57.72%)	+10%	0%	7.79%
A(8)	(39.00%)	0%	+20%	7.79%
A(9)	(85.84%)	+10%	+20%	7.00%

As you can see, the program's estimated financial standing is highly sensitive to the underlying assumptions.

In addition to the sensitivity testing summarized above, we performed cash flow testing on the base case scenario (i.e., starting discount rate of 7.79%) using the following interest rate scenarios:

Scenario #1: Level with no deviation.
Scenario #2: Uniformly increasing over ten years at one-half percent per year and then level.
Scenario #3: Uniformly increasing over five years at one percent per year, and then uniformly decreasing over five years at one percent per year to the original level at the end of ten years, and then level.
Scenario #4: An immediate increase of three percent and then level.
Scenario #5: Uniformly decreasing over ten years at one-half percent per year and then level.
Scenario #6: Uniformly decreasing over five years at one percent per year, and then uniformly increasing over five years at one percent per year to the original level at the end of ten years, and then level.
Scenario #7: An immediate decrease of three percent and then level.

Summaries of these cash flow testing results are included as Attachments B(1)-B(7). A brief summary of those results is included below:

Scenario	(Deficit)/ Surplus	LTC Claim Adj.	Model Expense Adj.	Investment Discount Rate
B(1)	(36.78%)	0%	0%	Scenario #1
B(2)	42.02%	0%	0%	Scenario #2
B(3)	(9.64%)	0%	0%	Scenario #3
B(4)	32.76%	0%	0%	Scenario #4
B(5)	(221.94%)	0%	0%	Scenario #5
B(6)	(64.70%)	0%	0%	Scenario #6
B(7)	(145.11%)	0%	0%	Scenario #7

As you can see, only two of the seven scenarios tested result in a positive projected surplus position.

Three items to note when reviewing these (and future) valuation projection results:

- Please remember that the results are very sensitive to the assumptions used.

- Along the same line, please remember that assumption changes produce leveraged results. In other words, if an assumption is revised (for example) such that the initial pricing for a product should have been 10% greater, that would increase the projected deficit as of 6/30/06 by approximately 20%.

- All of these results assume that the target is a 0% deficit (i.e., break-even). If a target surplus objective for inforce business is adopted for this program, projected surplus/deficit results would need to be adjusted accordingly.

We did not attempt to include projected 2006 new business in this valuation – only business inforce as of 6/30/06 was included. Please note that new business rates for 2006

were adjusted based on results from the 2005 valuation and supporting analyses and to achieve target surplus contribution objectives.

Base Case Reconciliation of Valuation Results - 2006 to 2005

The 2005 valuation result for the "base case" scenario was a present value projection deficit of approximately 39% of the present value of future premiums. The corresponding 2006 valuation result was a present value projection deficit of approximately 37%.

The reconciliation of these deficits can be broken down as follows:

2005 aggregate present-value deficit as of 6/30/05:	-39%
Adjusted to 6/30/06 (i.e., lost time):	-5%
2005 new business issued:	+1%
Revised assumed lapsation:	+4%
Revised assumed morbidity:	+2%
2006 aggregate present-value deficit as of 6/30/06:	-37%

In summary, 2006 valuation results are relatively consistent with 2005 valuation results. The impact of recently issued new business combined with revisions to both assumed lapsation and morbidity have approximately offset the impact of "lost time" as noted above.

A discussion of assumption revisions is included in an earlier section of this report.

Additional Perspectives on Projection Results

Since the 2005 valuation report was published and released, there has been much discussion regarding the validity of those valuation results. As you can see from this report, the 2006 valuation results are relatively consistent with the 2005 results.

Given the above, the purpose of this section is to provide additional perspective and data/information relating to the 2006 valuation results. The following items, in no particular order, are presented with this purpose in mind:

- The vast majority of the policies inforce as of 6/30/06 were issued in calendar years 2004 and prior. Attachment G summarizes a comparison of estimated current rates for those policies versus current rates found in the traditional LTC insurance marketplace in California. Please note that the current LTC insurance market rates would reflect each carrier's current understanding regarding key assumptions.

  As you review this data/information, please keep in mind that given CalPERS' one-class underwriting system and the fact that most of the inforce business was issued under underwriting requirements much more liberal than found in the LTC insurance marketplace, the appropriate comparison to review is the "Single Standard Rate Class" comparison.

As you can see, in general, rate levels for policies issued in calendar years 2004 and prior are less than market rate levels, and in some cases significantly so. This is especially true for rates for policies with lifetime benefit periods.

- Attachment H is identical to Attachments A(1) and B(1) – the "base case" scenario. In this scenario, as indicated earlier in this report, adjusted actual program claim costs were credibility-weighted with corresponding LTCG manual ultimate claim costs to develop the assumed ultimate claim costs. The credibility standards we applied given that "full credibility" meant there would be a 90% probability that estimates would fall within 10% of expected claim costs. The purpose of setting the credibility standards as defined here was to attribute as much credibility to actual program experience as we could reasonably justify given that we thought actual experience might differ significantly from industry manual experience.

  We reviewed two alternative projection scenarios using differing credibility standards:

  - Attachment I summarizes projection results assuming that no credibility can be attributed to actual program experience. I have provided this summary in response to discussions regarding the appropriateness of the estimates of actual program experience we are using in our analyses.

    Essentially, this attachment summarizes results assuming that this program experiences what would be considered industry-average experience. As you can see, the projected surplus/(deficit) in this scenario is still (15.63%).

    Given that assumption changes produce leveraged results as described earlier, the difference between the base case projected deficit and the projected deficit shown immediately above indicate that, on average, assumed morbidity is approximately 10%-11% greater than manual (i.e., LTC industry) morbidity.

  - Attachment J summarizes projection results given that, for credibility-weighting purposes, "full credibility" means there would be a 90% probability that estimates would fall within 5% (vs. 10%) of expected claim costs. This would be a more standard definition of "full credibility" within the actuarial community, but would put much more weight on manual experience than we have used in our valuation.

    As you would expect, the projection results for this scenario fall between those summarized in Attachments I and J. The projected surplus/(deficit) in this scenario is still (22.14%).

The choice of a credibility standard is an issue of actuarial judgment, and we are comfortable with the approach we have taken; however, we wanted to clearly communicate this concept and alternatives to help everyone understand the approach taken and the impact on results, and so that all can more accurately interpret valuation results.

- Attachment K summarizes a variety of inception-to-date statistics from the program. All claims-related statistics are increasing significantly year after year, and we would expect this trend to continue given the increasing age of the inforce block of business. As a result, if you look at the "base case" projection (i.e., Attachments A(1), B(1) or H), projected cash flows excluding investment income turn negative in 2012 and continue that way for the remainder of the projection. If this is correct, then clearly the weight of the funding burden into the future will continue to shift toward investment income (i.e., the size of the find balance and the return(s) achieved on that balance).

We would be happy to elaborate further on any data/information presented in this section or to discuss or present any additional data/information that might help everyone involved to understand and interpret the valuation results.

Recommendations

Based on all of the data/information presented above and in more detail later in this report, we recommend the following:

- Implement one or more initiatives effective as soon as possible that, in the aggregate, would reduce and ultimately eliminate the projected future deficit.

  Please note that an addendum to this report will soon be released that will present a number of proposed initiatives for consideration.

- Develop a detailed monitoring and reporting system that compares all key emerging experience items against (at least) pricing assumptions and corresponding assumptions from the most recent valuation.

Caveats and Limitations

Please note the following caveats and limitations with respect this valuation and this report:

- This report has been prepared for the internal use of CalPERS. This report may not be distributed, disclosed, copied, or otherwise furnished to any other party without UHAS's prior consent.

- UHAS has performed the work assigned and prepared this report assuming it will be utilized by persons technically competent in the areas addressed and for the stated purpose. Judgments should be made only after studying this report in its entirety. I am available to explain and/or amplify anything presented in this

report, and it is assumed that the user of this report will seek such explanation and/or amplification regarding any matter in question.

- Nothing included in this report is to be used in any filings with any public body such as the Securities and Exchange Commission or State Insurance Departments, without prior written approval from UHAS. Any distribution of this report must be in its entirety.

- We relied on data and information supplied by CalPERS and LTCG data services personnel. We have not audited or independently verified the information furnished to us. Although we have no reason to suspect the integrity of the underlying data, to the extent that the data are materially flawed, the results of our analysis may be materially impacted. The principal items/materials relied upon include:

    - Data extracts from LTCG's administrative system.
    - Direction from LTCG actuarial personnel regarding the appropriate interpretation and processing of the data provided.
    - Information contained in previous valuation reports and associated correspondence and documentation.
    - Financial information for the program from inception through 6/30/06.
    - Information/analyses/summaries/etc. provided by CalPERS staff and LTCG.

- The assumptions underlying the projection results summarized in this document and attachments are based on program data and experience, industry data and experience, discussions with program management, and informed judgment. I believe the assumptions used are reasonable in the aggregate based on the data/information I have and based on my experience; however, future experience will invariably be different from the projected experience, and other knowledgeable individuals could have different opinions about the appropriateness of any or all of the assumptions used.

- The validity of these projections depends on how actual future experience compares to the valuation assumptions. Assumptions for future morbidity, persistency, expenses, investment return, and other factors are based upon our evaluation of recent experience and anticipated future trends. Actual experience could be more or less favorable. To the extent that actual experience differs from the assumptions underlying this report, actual results will differ from the projection results presented in this report.

- In preparing this report, we have complied with all relevant Actuarial Standards of Practice and any other relevant documents published by the American Academy of Actuaries.

- As indicated previously, this report is not meant to serve as complete actuarial documentation. Much additional relevant data/information is available for distribution and can be provided upon request.

Conclusion

As indicated previously, please feel free to contact me with any questions at (317)575-7672 or via e-mail at kvolkmar@uhasinc.com.